Project Title: **Southeast Wolf Population Management**

Project Location: Unit 1A (5,300 mi^2)

Ketchikan area, including the mainland draining into Behm and Portland Canals

Project Objectives and Activities:

- Regulate seasons and bag limits to maintain viewable and harvestable populations of wolves
- Seal wolf pelts as they are presented for sealing
- Contact reliable observers to gain general information about the status and trends of wolf populations, including the use of an annual trapper survey

Work Accomplished During the Project Segment Period: We sealed 23 wolf pelts from Unit 1A. Information we collected from successful trappers included location and date of kill, method of take, transportation mode, sex, and pelt color. We collected information through informal discussions with hunters and trappers, and more formal information through our trapper survey. We also collected foreleg bones to determine proportions of adults to juveniles in the harvest.

Progress Meeting Project Objectives: The Unit 1A wolf harvest increased 8% from last season's harvest of 25 wolves. Trappers responding to the 1997/98 trapper survey indicated they believe wolves are presently common in Unit 1A (*Index of Abundance* (I_A) = 50, n = 4). Wolf numbers appear to have remained stable in Unit 1A during the past year.

Project Location: Unit 1B (3,000 mi^2)

Southeast Mainland from Cape Fanshaw to Lemesurier Point

Project Objectives and Activities:

- Regulate seasons and bag limits to maintain viewable and harvestable populations of wolves
- Seal wolf pelts as they are presented for sealing
- Contact reliable observers to gain general information about status and trends of wolf populations, including the use of an annual trapper survey

Work Accomplished During the Project Segment Period: We sealed 13 wolves (6 males and 7 females) in Unit 1B, taken by 6 active trapper/hunters. The left foreleg was collected from each sealed wolf to determine whether it was an adult or subadult. In Unit 1B 55 % of the harvested wolves were adults (6 adults and 5 subadults).

Progress Meeting Project Objectives: Discussions with trappers, hunters, and Forest Service biologists and information from a trapper questionnaire indicate the wolf population increased in the early 1990s and is currently stable.

Project Location: Unit 1C (7,600 mi^2)

Southeast mainland and the islands of Lynn Canal and Stephens Passage lying between Cape Fanshaw and the latitude of Eldred Rock, including Sullivan Island and the drainages of Berners Bay

Project Objectives and Activities:

- Regulate seasons and bag limits to maintain viewable and harvestable populations of wolves
- Seal wolf pelts as they are presented for sealing
- Contact reliable observers to gain general information about status and trends of wolf populations, including the use of an annual trapper survey

Work Accomplished During the Project Segment Period: Four wolves (2 males, 1 female, and 1 of unknown sex) were harvested and sealed during the 1998/99 season.

We used a trapper questionnaire to gain additional information regarding target species abundance, prey abundance, trapping conditions, and trapping patterns.

Progress Meeting Project Objectives: Wolf populations in Unit 1C are at moderate densities, although packs have apparently decreased use of areas near Juneau.

Project Location: Unit 1D (2,700 mi^2)

Southeast mainland north of the latitude of Eldred Rock, excluding Sullivan Island and the drainages of Berners Bay

Project Objectives and Activities:

- Regulate seasons and bag limits to maintain viewable and harvestable populations of wolves
- Seal wolf pelts as they are presented for sealing
- Contact reliable observers to gain general information about status and trends of wolf populations, including the use of an annual trapper survey

Work Accomplished During the Project Segment Period: Four wolves (1 male, 2 females, and 1 of unknown sex) were harvested and sealed in Unit 1D during the 1998/99 season.

A trapper questionnaire was used to gain additional information regarding target species abundance, prey abundance, trapping conditions, and trapping patterns.

Progress Meeting Project Objectives: Wolf populations in Unit 1D are at moderate numbers. Moose and bear hunters commonly see wolves and wolf sign, but the harvest of wolves remains low.

Project Location: Unit 2 (3,600 mi^2)

Prince of Wales Island and adjacent islands south of Sumner Strait and west of Kashevarof Passage and Clarence Strait

Project Objectives and Activities:

- Regulate seasons and bag limits to maintain viewable and harvestable populations of wolves
- Seal wolf pelts as they are presented for sealing
- Contact reliable observers to gain general information about the status and trends of wolf populations, including the use of an annual trapper survey

Work Accomplished During the Project Segment Period: We sealed 91 wolf pelts from Unit 2. Information collected from successful trappers included location and date of kill, method of take and transportation mode, sex, and pelt color. We collected information through informal discussions with hunters and trappers, and more formal information through a trapper survey. We also collected foreleg bones to determine proportions of adults to juveniles in the harvest.

Progress Meeting Project Objectives: The Unit 2 harvest (91) increased 13% from last season's harvest of 79 wolves. Recent Board of Game actions shortened Unit 2's hunting season by 5 months and its trapping season by 2 months. We exceeded by 1 animal a harvest quota of 90 wolves; the department implemented the quota in Unit 2 as a result of Board actions. Trappers responding to our 1998/99 trapper survey indicated they believe the wolf population is abundant in Unit 2 (I_A = 54, n = 12). Wolf numbers have remained stable in Unit 2 during the past year.

Project Location: Unit 3 (3,000 mi^2)

All islands west of Unit 1B, north of Unit 2, south of the centerline of Frederick Sound, and east of the centerline of Chatham Strait

Project Objectives and Activities:

- Regulate seasons and bag limits to maintain viewable and harvestable populations of wolves
- Seal wolf pelts as they are presented for sealing
- Contact reliable observers to gain general information about the status and trends of wolf populations, including the use of an annual trapper survey

Work Accomplished During the Project Segment Period: We sealed 34 wolves (16 males, 18 females) in Unit 3, taken by 22 active trapper/hunters. The left foreleg was collected from each sealed wolf to determine whether it was an adult or subadult. In Unit 3 we had 58% adult wolves (15 adults and 11 subadults). In a cooperative program with the U.S. Forest Service, we radio collared 1 female and 3 male wolves on Kupreanof Island.

Progress Meeting Project Objectives: Discussions with trappers, hunters, and Forest Service biologists and information from a trapper questionnaire indicate the wolf population increased in the early 1990s and is currently stable.

Project Location: Unit 5 (5,800 mi^2)

Cape Fairweather to Icy Bay, eastern gulf coast

Project Objectives and Activities:

- Regulate seasons and bag limits to maintain viewable and harvestable populations of wolves
- Seal wolf pelts as they are presented for sealing
- Contact reliable observers to gain general information about status and trends of wolf populations, including the use of an annual trapper survey

Work Accomplished During the Project Segment Period: We analyzed harvest from wolf sealing certificates.

Progress Meeting Project Objectives: Seven wolves (4 males, 3 females) were sealed in Yakutat. This limited harvest is due more to the lack of widespread trapping effort than to a shortage of wolves. Heavy snows limited snowmachine travel to areas near Yakutat. Local airplane pilots noted a healthy population of wolves throughout the winter of 1998/99 and observed wolves on moose carcasses on numerous occasions.

Segment Period Project Costs:

	Personnel	Operating	Total
Planned	13.8	6.5	20.3
Actual	9.9	5.0	14.9
Difference	3.9	1.5	5.4

Explanation: The difference is due to Ketchikan area position being vacant for one-third of the year and planned wolf population surveys not being conducted. We also spent less staff time than anticipated conducting trapper interviews.

Submitted by:

Bruce Dinneford
Management Coordinator

Project Title: **Southcentral Population Wolf Management**

Project Location: Unit 6 (10,100 mi^2)

Prince William Sound and north gulf coast

Project Objectives: Maintain a population in a minimum of 5 packs that will sustain an annual harvest of at least 10 wolves.

Work Accomplished During the Project Segment Period: No wolf surveys were completed in Unit 6 during 1998/99. Incidental observations, reports from trappers and guides, and preliminary data from a U.S. Forest Service wolf ecology study indicated a stable population of about 47–61 wolves in 8 packs.

Sealing records indicated a unit harvest of 2 wolves, 1 of each sex. Trapper effort was down because of low pelt prices and limited access to packs.

Progress Meeting Project Objectives: We achieved our wolf population objectives. The population probably could have sustained harvest in excess of the 10 animals specified in objectives.

Project Location: Units 7 and 15 (8,400 mi^2)

Kenai Peninsula

Project Objectives: Maintain the posthunting population in Unit 15A and the Kenai National Wildlife Refuge (KNWF) portion of Unit 7 at 35 wolves.

Maintain the population in the remainder of Unit 7 and Units 15B and 15C at a minimum ratio of 1 wolf to 50 moose.

Work Accomplished During the Project Segment Period: Reports from trappers and staff observations indicate that the wolf density is stable or slightly increasing due to reduced harvest over the past 5 years. The current estimate is 200 wolves for Units 7 and 15.

During the 1998/99 season hunters and trappers took 49 wolves in Units 7 and 15. Although wolves were abundant, trappers showed little interest in attempting to trap due primarily to the presence of lice-infested wolves and difficulties related to checking traps every 4 days or snares every 7 days on a portion of the Refuge. Wolf harvest was as follows: Unit 7–12, Unit 15A–9, 15B–7 and 15C–21. The 1998/99 harvest of 49 wolves is the highest harvest in the past 10 years, when harvest ranged from 9 to 42. Hunters reported 46% (22 of 48) of the harvest, the second highest nontrap harvest on record.

In April 1998 we relocated 18 wolves from the Tok area on Kenai Peninsula as part of the 40-Mile Caribou Recovery Plan. Released wolves comprised 15 pups (9 males, 6 females) and 3 adults (1 male and 2 females). Wolves were released in Unit 15C. By June 30, 1999 2 wolves

were taken by hunters, 2 wolves moved off the Kenai and were harvested by trappers, 4 were trapped on the Kenai, 2 died of unknown causes, and 1 was killed by a moose. Seven of the 18 wolves relocated are still alive and on the Kenai Peninsula. Relocated wolves are monitored monthly.

Progress Meeting Project Objectives: The harvest of 49 wolves represents 25% of the early winter population estimate of 200 and the highest harvest in 10 years for Units 7 and 15. Because wolves are still infested with lice, pelt value is low. Increased interest in trapping is either related to an increase in the wolf population or an increase in lynx trapping. An area census should be conducted during the winter of 1999/00 to estimate the wolf population. With this rate of harvest, the wolf population is expected to increase where prey is available.

Project Location: Units 9 and 10 (43,300 mi^2)
Alaska Peninsula and Unimak Island

Project Objectives: Maintain a population that will sustain a 3-year average annual harvest of 50 wolves.

Work Accomplished During the Project Segment Period: Direct observation surveys were not conducted during this reporting period. An indirect survey for estimating wolf abundance was accomplished by mail-out questionnaires sent to a select group of trappers. Active trappers returned only a few questionnaires, limiting our inferences about wolf abundance. However, trappers believed wolves were increasing compared to the previous year. During spring 1998, several red fox carcasses and 1 coyote from Unit 9E tested positive for rabies. This was the first confirmed rabid coyote in Alaska. The extent of mortality in 1998 among canids in Unit 9 apparently was higher among red foxes than wolves; 85 wolves were taken in Unit 9 during the 1998–99 season.

Progress Meeting Project Objectives: Snow conditions and lack of funding hampered progress developing measurable objectives for wolf populations in Units 9 and 10. Research on wolves continues in other areas, but unless budgets increase, it is unlikely effort will be extended on the Alaska Peninsula. The trapper questionnaire, incidental observations, and sealing requirements are adequate for management purposes as long as trapping effort remains light. If pelt prices and other factors lead to increased harvest, more intensive management may be required.

Project Location: Unit 11 (13,345 mi^2)
Wrangell Mountains

Project Objectives: Maintain the posthunting population at a minimum of 50 wolves.

Work Accomplished During the Project Segment Period: The fall 1998 prehunting season population estimate for Unit 11 was 100–125 wolves. This figure was higher than last year's

estimated population of 85–100 wolves. The current estimate is based on hunter and trapper reports and public and department sightings. We do not conduct systematic wolf surveys in Unit 11.

The 1998–99 harvest of 48 wolves was more than 4 times higher than the previous year's take of 11 and nearly double the 10-year average of 25 wolves taken between 1985 and 1994. We estimated this year's harvest rate at about 38% of the fall population. During the 1998–99 season, local residents living in the Park resident zone took all wolves harvested in Unit 11. Trappers used snowmachines as their primary method of transportation.

Progress Meeting the Project Objectives: Despite the relatively low abundance of primary prey species such as moose and caribou, unit wolves are considered abundant. Fluctuations in annual estimates may reflect either variability in deriving the estimates or actual changes in numbers. In some years localized harvests have reduced wolf numbers somewhat within heavily trapped areas; however, the wolf harvest has not been effective in reducing unit numbers. Further increases in the Unit 11 wolf population may be restricted by habitat suitability and prey availability. Because much of Unit 11 is mountainous or glaciated, wolves are limited to the more gentle slopes and river valleys. In addition, ungulate numbers are lower in Unit 11 than in the adjacent Unit 13. Wolf disperse into suitable habitat in Unit 13 where ungulate numbers are higher and the prey base larger.

The wolf harvest in Unit 11 has been lower the last 3 seasons. Yearly fluctuations in harvest often reflect pelt prices, trapper effort, and snow conditions as much as wolf abundance. The price paid for wolves has declined appreciably the last 2 years, and trappers are putting less effort into taking wolves because of current market conditions. Plotting locations of wolf kills show most of the wolf harvest occurred in the northern portion of the unit. In more remote areas, wolf packs received little or no hunting or trapping pressure. Most trappers and hunters concentrate their activities near access points, especially those areas along the Nabesna and McCarthy Roads, (the only roads that lead into this unit) and along the Copper River adjacent to the Tok Cut-off. Because unit hunting and trapping pressure is low and not expected to increase, Unit 11's wolf population will continue to fluctuate yearly, with a trend to stabilize at or near current levels, based on dispersal patterns and intense localized harvests.

Project Location: Unit 13 (25,000 mi^2)

Nelchina Basin

Project Objectives: To maintain the posthunting population at a minimum of 135–165 wolves.

Work Accomplished During the Project Segment Period: We conducted wolf survey flights in Unit 13 during November 1998 and March 1999. The area covered during these flights included large portions of Unit 13A, 13B, 13C, and 13D, but only small segments of 13E. We used reports from hunters, trappers, guides, incidental sightings by department personnel, and track survey data to estimate wolf densities for all of Unit 13. The fall 1998 Unit 13 population estimate was between 475–525 wolves in 50–55 packs. Observed pack size was as high as 16

wolves. This yielded a unit density estimate of between 11 and 12 wolves/1,000 km^2. The preliminary spring 1999 population estimate was 275–325 wolves.

Preliminary harvest figures indicate hunters and trappers took 183 wolves during the 1998–99 season in Unit 13. Method of take during the 1998–99 season included 78 (42%) wolves trapped, 34 (19%) ground shot, and 71 (39%) snared. Snowmachines were the most popular method of transportation (57%). The average take per trapper/hunter was 3.0 wolves. The preliminary overall wolf harvest rate in Unit 13 was approximately 37% of the estimated fall population.

Progress Meeting the Project Objectives: The spring 1999 population estimate of 275–325 wolves in Unit 13 exceeds the spring population objective for Unit 13 set by the Board of Game by 125 or more wolves. The closest the spring population estimate has come to approaching the posthunt management objective for wolves was in 1995 when an estimated 180 wolves remained postharvest. Wolves in Unit 13 are not limited by prey availability because moose numbers are moderate and caribou numbers are high. Although the Nelchina caribou herd was estimated at over 38,000 animals in the fall of 1998, virtually the entire herd migrated into Units 12 and 20E during the winter of 1998–99. As a result, caribou were unavailable during the winter to wolves in Unit 13, and moose became the important prey species from early October until late April. In addition, hares are at a 30-year high in Unit 13, and some trappers reported observations of wolves specifically taking hares, making use of an abundant alternate prey.

The 1998–99 wolf harvest increased from last year's take of 130 wolves. Wolf harvests have averaged 145 (range = 122–179) the last 5 years (1993–97). Yearly fluctuations reflect snow conditions, weather, trapper effort, and wolf abundance or distribution in relation to established traplines. Current harvest levels, coupled with natural mortality, have not been high enough to limit further growth of the wolf population. Under current methods and means of harvesting wolves, trappers do not harvest enough wolves to reduce the spring wolf population enough to approach current management objectives. Prices paid for wolf pelts are currently very low, and the decline in pelt prices may cause a decline in trapping effort. Additional monetary incentive may increase harvest of wolves in some areas, but more remote portions of Unit 13 will probably continue to have abundant wolf populations with low harvest pressure.

The Board of Game set the current spring population objective of 135–165 wolves for Unit 13. We have not approached that objective using normal seasons and bag limits for wolves. In order to achieve this management objective, we recommend the department implement a permit system to take 75 to 125 wolves via land and shoot methodology during the winter of 1999–2000.

Project Location: Unit 14 (6,600 mi^2)
Upper Cook Inlet

Project Objectives:

Units 14A and 14B: Maintain a posthunting population at 35 wolves.

Unit 14C: Maintain a posthunting population of 20 wolves.

Work Accomplished During the Project Segment Period: During the 1998–99 season, 28 wolves were sealed from Unit 14. Of these, 14 were taken in 14A, 10 were taken in 14B and 4 were taken in 14C. A questionnaire was mailed to all trappers who sealed fur taken in Unit 14. Although few trappers made sets specifically for wolves, those that did were very effective.

During November and December trappers caught several wolves in Unit 14B that were infested with the dog-biting louse *Trichodectes canis*. This was the first time lice had been confirmed in wolves outside of the Kenai Peninsula. Further research confirmed lice in 1 pack in Unit 14 and 2 packs in Unit 16. Please see Unit 16 for a more thorough explanation of the department's actions related to this new development.

Sealing records, the lice-control project, and observations from staff and the public indicate a minimum of 19 packs occupied the following areas: Upper Talkeetna River, Wells Mountain, Lower Talkeetna River, Iron Creek, Montana Creek, Kashwitna River-Little Willow Creek, Willow Mountain, Bald Mountain, Lower Little Susitna River, Goose Bay, Kings River-Moose Creek, Chickaloon River, Carpenter-Wolverine Creeks, Knik River, Lake George, Eklutna River, Elmendorf–Fort Richardson, Ship Creek, and Twenty-mile River/Portage Creek.

Progress Meeting Project Objectives: Through staff observations and discussions with trappers and hunters, we estimated the spring 1999 (pre-pupping) wolf population in Unit 14 at 91–116 wolves, including 66–81 in Units 14A and 14B, and 25–35 in Unit 14C. We met our population objectives, and prey densities generally remain high. To adequately assess wolf numbers, the department should continue to refine a systematic method to estimate wolf numbers and apply this method every 5 years.

Project Location: Unit 16 (12,300 mi^2)

West Side of Cook Inlet

Project Objectives: Maintain a population that will sustain an annual harvest of 25 wolves.

Work Accomplished During the Project Segment Period: During the 1998–99 trapping/hunting season, 34 wolves (10 from Unit 16A; 24 from Unit 16B) were reported taken from Unit 16. Hunters took 11 wolves (32%) during August and September. Few trappers made sets specifically for wolves, according to our mail-out questionnaire sent to trappers who sealed fur taken in Unit 16. Weather conditions produced generally favorable travel and trapping conditions.

During November and December trappers caught several wolves in Unit 14B that were infested with the dog-biting louse (*T. canis*). This was the first time lice had been confirmed in wolves outside of the Kenai Peninsula. To attempt to arrest the spread of lice to other areas, we first evaluated wolves from 14 packs, either through aerial observation for signs of infestation (4 packs) or by capturing, examining, and radiomarking 1–2 individuals in the pack (10 packs). We determined 3 packs (Willow Mountain, Montana Creek, and Deshka River) were infested.

We attempted to capture and treat the remaining members of the infested packs and succeeded in catching 27 of 28 wolves from packs known to harbor lice (we believe the remaining wolf was trapped shortly after our capture operation). Wolves were treated with ivermectin, which kills lice for up to 6 months. In addition, approximately 1200 ivermectin-laced meat baits were placed along river and rail corridors within the area occupied by the infested packs, to hopefully treat coyotes, wolves, and feral dogs in the area. Staff from Tok, Fairbanks, Soldotna, Homer and Anchorage assisted with this emergency project. Operational expenses totaled approximately $62,000, not including staff salaries.

The efforts associated with the lice infestation yielded a more accurate assessment of wolf pack distribution and abundance than is possible in most years. In Unit 16 we confirmed packs occupying the following areas: Kahiltna River, Kahiltna Glacier, Upper Yentna River, Deshka River, Lake Creek, Alexander Creek-Eightmile, Theodore River and Beluga River. Sealing records and observations from biologists, trappers, and pilots indicate packs inhabiting additional areas, including Tokositna River, Happy River, McArthur-Big River and Drift River.

Progress Meeting Project Objectives: The population objectives for this unit were met. With information from sealing certificates and public and staff observations, we estimated 85–103 wolves, in a minimum of 14 packs, inhabited Unit 16 during spring (pre-pupping) 1999. Assuming average reproduction of 5 pups per pack and some dispersal, we estimate there will be 140–180 wolves by fall. At that level the population could sustain a harvest of more than 50 wolves annually.

Project Location: Unit 17 (18,800 mi^2)

Northern Bristol Bay

Project Objectives: Maintain a population that will sustain an annual harvest of 25 wolves.

Work Accomplished During the Project Segment Period: Preliminary sealing data for the 1998–99 trapping and wolf hunting season indicate a reported harvest of 78 wolves, including 50 males (64%) and 28 females (36%). This level of harvest is slightly higher than the previous 5-year average of 72 wolves/year but less than the number of wolves taken in 1993. In 17A 14 (18%) wolves were reported harvested, in 17B 38 (49%) were taken, and 26 (33%) were reported in 17C. Seventeen residents reported harvesting 59 wolves (76%), Alaska residents from outside the unit harvested 10 (13%) wolves, and nonresident hunters harvested 9 (11%).

Trappers reported using snowmachines to take 65 (83%) wolves and aircraft to harvest 9 (12%) wolves. Sixty-eight (87%) of the wolves harvested during this reporting period were shot, 5 (6%) were snared, and 4 (5%) were trapped. Eleven (14%) of the wolves were taken during the main big game hunting season (August–October), 1 (1%) wolf was taken in November, 15 (19%) were harvested in December, 25 (32%) in January, 15 (19%) in February, and 11 (14%) in March. Abundant snow throughout the unit augmented snowmachine travel.

Progress Meeting Objectives: We have no objective data on the population density of wolves in the unit. Local trappers noted that wolf populations appeared to be increasing unitwide during this reporting period. Wolves seemed to be responding favorably to increasing ungulate populations, and trappers/hunters were able to harvest a large number of these wolves.

Segment Period Project Costs:

	Personnel	Operating	Total
Planned	26.4	6.0	32.4
Actual	26.4	68.0	94.4
Difference	0.0	-62.0	-62.0[a]

[a] We spent additional funding to capture and treat wolves infested with lice in Units 14 and 16.

Submitted by:

Michael G. McDonald
Assistant Management Coordinator

Project Title: **Interior Wolf Population and Habitat Management**

Project Location: Unit 12 (9,978 mi^2)

Upper Tanana and White River drainages including the North Wrangell, Nutzotin, and Mentasta Mountains and the eastern Alaska Range

Project Objectives and Activities:

1. Provide opportunity to participate in hunting, trapping, and viewing wolves
    a. Monitor harvest through sealing records and trapper questionnaires
    b. Temporarily close the wolf trapping season if the population declines below 100 wolves
2. Monitor wolf numbers and population characteristics
    a. Conduct fixed-wing aerial surveys during the winter in selected areas
    b. In cooperation with the U.S. Fish and Wildlife Service (FWS), radiocollar and monitor selected packs

Activities Planned:

1. Review and revise population management objectives
2. Monitor the harvest of wolves, interview trappers, and seal all pelts brought in for sealing (objective 1)
3. Conduct aerial surveys in the eastern part of the unit (objective 2)

Activities Accomplished:

1. Conducted aerial population estimation surveys during February–April (objectives 1 and 2).
2. Monitored radiocollared packs and individual wolves (objective 2).
3. Reviewed management objectives using input from advisory committees and found no changes necessary to meet biological or public needs or to comply with the intensive management law (all objectives).

Project Location: Units 19, 21A, and 21E (59,756 mi^2)

Drainages of the Kuskokwim River upstream from the village of Lower Kalskag; Yukon River drainage from Paimiut upstream to, but not including, the Blackburn Creek drainage; the entire Innoko River drainage; and the Nowitna River drainage upstream from the confluence of the Little Mud and Nowitna rivers

Project Objectives:

1. Maintain a harvestable population of wolves capable of sustaining an annual harvest of at least 100 wolves, assuming no further restrictions in current harvest regulations and bag limits

2. In areas where wolf predation is thought to be significantly affecting ungulate populations through calf or adult mortality, redirect wolf harvest efforts and/or increase trapper/hunter effectiveness in those areas through trapper seminars

3. Continue to refine annual wolf population estimates in the area based on incidental sightings, hunter interviews, trapper questionnaires, and a thorough evaluation of sealing documents

4. Where needed, conduct wolf population surveys to obtain statistically bounded estimates

Activities Planned:

1. Review and revise population management objectives

2. Monitor the harvest of wolves, interview trappers, and seal all pelts brought in for sealing (objectives 1–3)

3. Conduct aerial surveys in conjunction with FWS in Unit 21 (all objectives)

Activities Accomplished:

1. Monitored wolf harvest, interviewed trappers, and sealed pelts (objectives 1–3)

2. Prepared to conduct a wolf survey in Unit 19A but was not able to do so because of weather

Project Location: Units 20A, 20B, 20C, 20F, and 25C (39,228 mi^2)
Lower Tanana Valley, Central Yukon Valley

Project Objectives:

1. Monitor harvest through sealing certificates

2. Estimate wolf population size and distribution from aerial survey and harvest in Units 20A, 20B, and 25C

    a. Maintain a sample of radiocollared wolves in the Tanana Flats portion of Unit 20A to facilitate aerial surveys and moose/wolf research

    b. Conduct a TIP (Track Intercept Probability Estimator) in the Minto Flats portion of Unit 20B

c. Conduct aerial surveys in Units 20C, 20F, and 25C by spring 1998

3. Conduct calf mortality study of moose and/or caribou in Unit 20A

Activities Planned:

1. Review and revise population management objectives

2. Monitor the harvest of wolves, interview trappers, and seal all pelts brought in for sealing (objectives 1 and 2)

3. Conduct aerial surveys during winter in selected areas to estimate the wolf population (objective 2)

Activities Accomplished:

Monitored the harvest of wolves through pelt sealing (objective 1)

Project Location: Unit 20D (5637 mi^2)
Central Tanana Valley near Delta Junction

Project Objectives:

1. Manage for a population of 15–125 wolves

2. Determine distribution, abundance, predation rates, and population trends in selected areas

   a. Seal hides taken by hunters and trappers; interview hunters and trappers to assess relative abundance of wolves

   b. Conduct aerial surveys during the winter in selected areas

   c. Radiocollar and monitor selected packs

Activities Planned:

1. Review and revise population management objectives

2. Monitor the harvest of wolves, interview trappers, and seal all pelts brought in for sealing (all objectives)

3. Conduct an estimation survey in a portion of the unit (objective 2)

Activities Accomplished:

1. Did not review population management objectives because the current objectives adopted by the Alaska Board of Game were not scheduled for review

2. Sealed harvested wolves (objective 2a). Preliminary harvest based on sealing of pelts was 15 wolves

3. Interviewed trappers, hunters, and pilots to gather information on population size and distribution (objective 2a)

4. Did not complete aerial population surveys because of poor survey conditions (objective 2b)

Project Location: Unit 20E (10,680 mi^2)

Fortymile, Ladue, and Charley River drainages

Project Objectives:

1. Monitor wolf numbers, population characteristics, and harvests

    a. Monitor harvest through sealing records and trapper questionnaires

    b. Conduct fixed-wing aerial surveys during the winter in selected areas

    c. Radiocollar and monitor selected packs

2. Provide for the maximum harvest of wolves in western Unit 20E

    a. Through seasons and bag limits, allow for increased harvest within and near the Fortymile Caribou Herd

3. Reduce the number of wolves on the Fortymile caribou herd's calving and summer range by controlling fertility among dominant pairs and relocating all members of up to 15 packs other than the dominate pair

    a. Monitor relocated wolves to determine survival, homing instinct, and establishment of territory

    b. Monitor sterilized wolves to determine pack size, territory size and usage, and kill rates

    c. Close trapping if the wolf population in the control area is reduced to 30 wolves

Activities Planned:

1. Review and revise population management objectives

2. Monitor the harvest of wolves, interview trappers, and seal all pelts brought in for sealing (objectives 1 and 2)

3. Conduct aerial surveys in the eastern part of the unit (all objectives)

4. Continue monitoring radiocollared wolves to determine range use, natality, and mortality (all objectives)

Activities Accomplished:

1. Relocated subordinate wolves and fertility-controlled dominant wolves (objective 3). Wolf numbers were reduced by 78% within 13 pack territories.

2. Monitored movements, kill rates, and productivity of relocated and resident wolves (objectives 1 and 3)

3. Conducted aerial surveys in the eastern portion of the unit during February–April (all objectives)

4. Monitored wolf numbers in the western portion of the unit by track surveys (October–April) and radiotelemetry (all objectives)

5. Monitored harvest by sealing documents, trapper questionnaires, and contact with trappers in the field (Objectives 1 and 2)

6. Reviewed management objectives through opinions from advisory committees and found no changes necessary to meet biological or public needs or to comply with the intensive management law (all objectives)

Project Location: Units 21B, 21C, 21D (20,655 mi^2)

Yukon River drainage above Paimiut to Tozitna River, including Koyukuk River up to Dulbi Slough

Project Objective: Objectives will be formulated during the next reporting period.

Activities Planned:

1. Review and revise population management objectives

2. Monitor the harvest of wolves, interview trappers, and seal all pelts brought in for sealing

3. Conduct aerial survey in conjunction with the U.S. Fish and Wildlife Service (FWS)

Activities Accomplished:

1. Initiated formulation of objectives as part of Koyukuk River management planning

2. Conducted aerial survey of 5400 mi^2 of Lower Koyukuk River Drainage with FWS
3. Monitored harvest by sealing wolf pelts and distributing trapper questionnaires

Project Location: Unit 24 (26,055 mi^2)
Koyukuk River drainage above Dulbi River

Objective:

Objectives will be formulated during the next reporting period.

Activities Planned:

1. Review and revise population management objectives
2. Monitor the harvest of wolves, interview trappers, and seal all pelts brought in for sealing
3. Conduct aerial surveys with the U.S. Fish and Wildlife Service (FWS)

Activities Accomplished:

1. Initiated formulation of objectives as part of Koyukuk River management planning
2. Conducted aerial survey of 5400 mi^2 of Lower Koyukuk River Drainage with FWS
3. Monitored harvest by sealing wolf pelts and distributing trapper questionnaires

Project Location: Units 25A, 25B, 25D, 26B, and 26C (73,756 mi^2)
Eastern Interior, Eastern Brooks Range, and Central and Eastern Arctic Slope

Project Objectives:

1. Conduct a wolf census in Units 25A, 25D East, and 25D West by 1999
2. Using computer modeling, evaluate the effects of wolf predation on moose in Unit 25D

Activities Planned:

1. Review and revise population management objectives
2. Monitor the harvest of wolves, interview trappers, and seal all pelts brought in for sealing (objective 2)

3. Conduct aerial surveys during winter in selected areas to estimate the wolf population (all objectives)

Activities Accomplished:

1. Sealed wolf pelts and compiled harvest data (all objectives)

2. Estimated wolf numbers by aerial survey in a 13,000 mi^2 area in Unit 25D (objective 1)

3. Explored wolf–moose relationships with computer modeling in connection with moose management planning efforts in Unit 25D (objective 2)

4. Evaluated population management objectives in connection with moose management planning (objective 2)

5. planning (objective 2).

Segment Period Project Costs:

	Personnel	Operating	Total
Planned	82.5	13.4	95.9
Actual	54.8	30.1	84.9
Difference	+27.7	-16.7	+11.0

Explanation: **Operating:** Better than normal spring survey conditions made it possible to accomplish additional and more extensive surveys primarily in the Tok (Unit 12 and 20E), Galena (Unit 21D), and Fort Yukon (Units 25B and D) areas. **Personnel:** The triennial Wolf Management Reports were not due this period.

Roy Nowlin
Regional Management Assistant

David James
Management Coordinator

Project Title: **Western Alaska Wolf Management**

Project Location: Unit 18 (42,000 mi^2)
Yukon–Kuskokwim Delta

Project Objectives and Activities:

1. Establish and maintain viable wolf populations in Unit 18

    a. Monitor harvests through the sealing program, contacts with the public, and the annual trapper questionnaire

    b. Explain and promote compliance with the sealing requirement among local hunters and trappers

    c. Monitor the size and population status of wolves and wolf packs in Unit 18

2. Minimize adverse interactions between wolves and the public

3. Develop updated population management objectives upon implementation of the statewide wolf management plan

Work Accomplished During the Project Segment Period: Sealing certificates show 23 wolves were harvested in Unit 18 during the 1998–1999 season. This is about half the harvest of the previous year and reflects decreased trapper activity rather than a smaller wolf population.

A trapper questionnaire was sent out in spring 1999. Fourteen trappers from Unit 18 responded. Trappers and hunters have seen increasing numbers of wolves in the Kilbuck and Kuskokwim Mountains and the river corridor between Marshall and Paimiut. Reports from the general public tell of increased wolf sightings.

Progress Meeting Project Objectives: Observations by department staff, other agencies, and the public indicate that several wolf packs occupied the entire length of the Yukon River in Unit 18, portions of the Kilbuck Mountains, and the Kuskokwim River near the Unit 19A boundary. The Unit 18 population is estimated to range from 100–125 wolves in 8–12 different packs.

Due to low fur prices and high local demand for wolf pelts for parka ruffs, some local trappers may have not sealed their harvest. Wolf harvest is normally very low in Unit 18. Prior to the caribou and moose population increases of the last 3–5 years, most wolves in Unit 18 were migrants from nearby Units 17, 19, 21, to the east and Unit 22 to the north. There are undoubtedly established packs now, and they are the majority of wolves found here.

Increased numbers of ungulates in the Kuskokwim and Yukon drainages have resulted in increased numbers of wolves in Unit 18. Recent migrations of several thousand caribou of the Western Arctic Herd into the lower Yukon and Andreafsky River area, expansion of the Mulchatna caribou herd into the Kilbuck Mountains, and increased numbers of moose along the lower Yukon River have allowed the wolf population to grow in Unit 18.

Project Location: Unit 22 (25,230 mi^2)

Seward Peninsula and eastern Norton Sound

Project Objectives:

1. Establish and maintain viable wolf populations in Unit 22

    a. Assess harvest, interview hunter/trappers, and seal all pelts brought in for sealing

    b. Establish and maintain license vendors and sealers in all Unit 22 villages

    c. Improve compliance with current sealing requirements through public communication and education

2. Cooperate with reindeer herders to develop methods that will reduce adverse interactions between wolves and reindeer

3. Develop updated wolf management objectives upon completion of the statewide wolf management plan

Work Accomplished During the Project Segment Period: The furbearer sealing records indicate that 22 hunter/trappers harvested 39 wolves (25 males, 8 females, 6 unknown) in Unit 22. Fourteen were harvested in Unit 22A, 21 came from Unit 22B, 1 from 22C, and 3 were taken in 22E. Thirty were taken by ground shooting, 6 were trapped, and 3 were taken by unknown means. Snowmachines were used to take 33 of the wolves, 1 wolf was taken with aid of a boat, 3 with aid of an airplane, and 2 with unknown transportation. Big game harvest surveys in 2 Norton Sound villages showed Koyuk residents harvested an additional 20 wolves and Shaktoolik residents harvested an additional 13 wolves.

Wolves are becoming more abundant in many parts of Unit 22, resulting from the large number of Western Arctic herd caribou that have wintered on the Seward Peninsula during the last 3 years. Pack sizes reported on sealing certificates were significantly larger in Units 22A and 22B than in the past. In Unit 22A wolves were taken from packs of up to 20 animals and in Unit 22B packs of up to 9 wolves were reported. In Units 22C and 22E, reports were mostly of pairs of wolves. Before 1996, when caribou first wintered in large numbers on the central Seward Peninsula, wolves were present primarily during the winter months, and there were few resident wolf packs. Wolves are now present year-round in much of the unit.

In 1998–1999 Unit 22 participated for the first time in the statewide trapper survey program. Questionnaires were sent at the end of the season to hunter/trappers who sealed furs harvested in Unit 22 to better assess harvest and abundance of wolves and other furbearers. Respondents from Units 22A and 22B reported that wolves were common, and numbers seem to be increasing. Respondents from the remainder of the unit reported that wolves were scarce, but most people thought numbers were increasing.

We devoted considerable time to answering questions from the public and supporting local license vendors and fur sealers.

Progress Meeting Project Objectives: The magnitude of unreported wolf harvest each year in Unit 22 is thought to be substantial, and fur-sealing records only provide a minimum estimate of harvest. Although fur-sealing agents are available in all Unit 22 villages, many furs are tanned, kept, bartered or sold locally, and people see no reason to seal them. In an effort to get better harvest data for furbearers, wolves and wolverine were included in the big game harvest surveys conducted for the first time in April 1999 in 2 Unit 22 villages. These surveys in Koyuk and Shaktoolik showed that only 13% of the wolf harvest in Koyuk were sealed and 32% of the harvest in Shaktoolik was sealed.

Wolf predation on reindeer continues to be a concern for reindeer herders. However, reports of problems are fewer, primarily because the herds that were most seriously affected by wolves have lost all or most of their reindeer over the last few years due to caribou migration that has swept through their ranges. As wolf numbers increase, they may increasingly affect moose densities in parts of the unit. At this time bears are believed to be the primary predators responsible for limiting moose populations in some parts of Unit 22.

In some communities efforts to inform the public of the importance of wildlife conservation and the need for regulations have increased the number of individuals purchasing licenses. Additional contact with local village residents is needed if complete compliance with current regulations is to become a reality.

Project Location: Unit 23 (43,000 mi^2)

Kotzebue Sound and Western Brooks Range

Project Objectives:

1. Maintain a healthy population of wolves in Unit 23

2. Maintain the furbearer-sealing program to monitor harvest

Work Accomplished During the Project Segment Period: We supported license vendors and furbearer sealers in Unit 23. Eleven hunters sealed 28 wolves (10 males, 11 females, and 7 sex unknown). Eight wolves were trapped by 2 hunters; all others were shot. Two of the 28 wolves sealed were shot in the fall. A nonlocal Alaska resident and a nonresident hunter harvested these wolves; these hunters accessed their hunting area by aircraft. All other hunters and trappers were residents of Unit 23 and used snowmachines to harvest wolves between December and April. We collected observations and opinions on population trends from local residents who had recent field experience; we also relied on our own observations of wolves and wolf tracks to determine population information.

Progress Meeting Project Objectives: Healthy populations of wolves and liberal trapping regulations continue in Unit 23. Residents are reporting higher wolf populations on the northern

Seward Peninsula. This may be the result of recent caribou migrations and the presence of over-wintering animals in the area. Low snowfall resulted in poor travel conditions early in the season, thereby reducing harvests.

The department recognizes that hunters harvest many wolves and do not have them sealed. The unreported harvest probably exceeds the reported take of wolves. Harvest reporting rates by local residents remained low. We suspect that only hides sold outside the region or tanned commercially are sealed. In Unit 23 most hides are processed locally and remain within the region; therefore, they are not sealed. This practice will probably continue, despite more availability of furbearer sealers or vendors.

Project Location: Unit 26A (53,000 mi^2)

Western North Slope

Project Objectives:

1. Maintain viable wolf populations in Unit 26A

    a. Monitor the population density of wolves in the most heavily hunted area in Unit 26A once every 3 years

    c. Monitor harvest through the statewide sealing program and by interviewing knowledgeable people in the villages

    d. Develop a better monitoring system

    c. Interview hunters, guides, and pilots to collect harvest and population status information

2. Determine the impact of wolves on Unit 26A moose populations

    a. Monitor the wolf population by conducting surveys in the primary moose habitat area once every 3 years

    b. Record public and department observations of wolves and the number of moose carcasses during moose counts

Work Accomplished During the Segment Project Period: During the 1998–99 reporting period, 13 wolves were sealed. Eight (62%) were males and 5 (38%) were females. All 13 were ground shot. Hunters used snowmachines to access 12 of these wolves; a hunter who harvested 1 wolf accessed the hunting area by airplane. The chronology of the harvest was as follows: September – 1, January – 1, February – 3, March – 5, and April – 3. Two were white, 8 were gray, and 3 were black. Local residents harvested 12 wolves, and nonresidents harvested 1 wolf.

In April 1998 we used a Sample Unit Probability Estimator (SUPE) sample design to census wolves in a 10,343 km^2 area bordered by the Colville, Killik, and Itkillik rivers and Gunsight

Mountain. Lack of fresh snow and wind-blown snow conditions resulted in poor tracking conditions in the southern half of the study area. We concentrated our efforts on the northern 5000 km^2. Only 7 wolves were seen in 2 packs, resulting in an estimate of 8 wolves, with a confidence range of 7–11 at the 90% level. A density estimate was calculated at 1.6 wolves per 1000 km^2. This compares to a density estimate of 4.2 wolves/1000 km^2 in 1992 and 4.1 wolves/1000 km^2 in 1994.

We normally log wolf sightings during moose counts. In 1995 we observed 16 wolves during 35 hours of surveying, and in 1991 we recorded 29 wolves in 39 hours of flight. One wolf was sighted during 24 hours of moose surveys in 1999.

Progress Meeting Project Objectives: We have monitored the wolf population periodically, and surveys indicate the density of wolves increased from approximately 2.6 wolves/1000 km^2 in 1987 to 4.1 wolves/1000 km^2 in 1994. The survey we conducted in 1998 indicated a substantial decline to 1.6 wolves/1000 km^2. Fewer wolves per hour were seen during moose surveys in 1995, 1996, and 1997 than during the period 1991–1994; this year, we saw only 1 wolf during the moose count.

The numbers of wolves sealed in Unit 26A declined from 47 in 1994–1995 to 19 in both 1995–1996 and 1996–1997, dropping to a low of 3 in 1997–1998 and increasing to 13 in 1998–1999. The department sealing program does not always effectively measure harvests in villages, but this data is a strong indication the number of wolves has declined throughout the unit. Hopefully, the number sealed in 1998–1999 is an indicator of increasing wolf numbers.

The goal of helping to develop a more effective harvest-monitoring program was partially accomplished. We have worked with the North Slope Borough to develop a harvest-monitoring program involving local monitors in each village. The North Slope Borough study indicated the following harvest during 1994–1995: 59 wolves by Anaktuvuk Pass hunters, 18 in Nuiqsut, and 2 in Atqasuk (Brower and Opie 1996 and 1997). During 1994–1995, 18 wolves were sealed in Anaktuvuk Pass, and none was sealed in Nuiqsut or Atqasuk. This would indicate that about 25% of the wolves harvested were sealed.

The number of moose counted during surveys along the Colville, Anaktuvuk, and Chandler rivers declined by 75% between 1991 and 1996, during a time of high wolf density. The moose population has begun to increase since 1997 while the density of wolves has been low. It is difficult to determine if the wolf density is driving the moose population fluctuation or if the wolves immigrated to the area in response to high moose and caribou numbers and left when the numbers of prey animals declined. We will continue to conduct wolf and moose surveys to monitor the impact of hunters on wolves and the combined impact of hunters, bears, and wolves on moose.

In order to assist with the recovery of the 40-Mile Caribou Herd, North Slope residents agreed to have 15 wolves relocated from the Tok area to the North Slope. At the request of local residents, the wolves were not collared, so it will be difficult to monitor the survival of the wolves.

Segment Period Project Costs:

	Personnel	Operating	Total
Planned	0	10	10
Actual	0	0	0
Difference	0	10	10

Explanation: Because we had conducted the SUPE wolf census in April 1998, we did no survey work on wolves this segment period.

Submitted by:

Peter Bente
Survey-Inventory Coordinator